

REMARKS

Applicant thanks the Examiner for the careful consideration given to this application. Reconsideration is now respectfully requested in view of the amendment above and the following remarks.

Claims 1-38 are pending in this application. Claims 1 and 19 are independent claims. Claims 1, 19 and 24 have been amended without prejudice herein. Claims 37 and 38 have been added without prejudice herein. Reconsideration and allowance of the present application are respectfully requested.

Summary of Examiner Interview

Applicants wish to thank Examiner Gonzalez for taking the time to discuss the subject application with Applicants' counsel, Mr. Jonathan Darcy, on April 8, 2010. The asserted rejections were discussed.

Claim Objections

Claim 24 is objected to because of informalities. In light of the amendment made to claim 24, to correct the typographical error appearing in the claim number, this objection is now moot. Therefore, Applicants respectfully request that the objection to claim 24 be withdrawn.

Claim Rejections Under 35 U.S.C. §103

Claims 1-4, 7 and 12-19 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2007/0184828 to Majidi-Ahy (hereinafter "Majidi-Ahy") in view of U.S. Patent Publication No. 2004/0116115 to Ertel (hereinafter "Ertel"), in further view of U.S. Patent No. 6,728,514 to Bandeira et al. (hereinafter "Bandeira") and in further view of U.S. Patent No. 7,006,823 to Shurvinton et al. (hereinafter "Shurvinton"). Claims 8-11 and 26-29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Majidi-Ahy, in view of Ertel, in further view of Bandeira, in further view of Shurvinton, as applied to Claims 1, 7, 19 and 25, and in yet further view of U.S. Patent No. 6,973,312 to Ngan (hereinafter "Ngan").

Applicant requests reconsideration and withdrawal of these rejections for at least the following reasons.

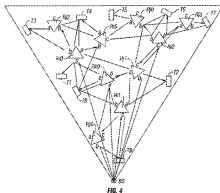
Obviousness is a question of law that is evaluated based on underlying factual questions about the level of skill in the art at the time the invention was made, the scope and content of the prior art, and the differences between the prior art and the asserted claim. *KSR Int'l Co. v. Teleflex, Inc.*, 127 S.Ct. 1727 at 1734, 1745 (2007), (quoting *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18 (1966)). The Examiner bears the burden of establishing a *prima facie* case of obviousness based upon the prior art. *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-88 (Fed. Cir. 1984). Applicant may traverse the Examiner's *prima facie* determination as improperly made out. *In re Heldt*, 58 C.C.P.A. 701, 433 F.2d 808, 811, 167 USPQ 676, 678 (CCPA 1970). Applicant submits a *prima facie* case of obviousness is lacking, at least by virtue that the cited references fail, in any combination, to teach each of the limitations of any of the pending claims.¹

Claims 1 -18

1. Majidi-Ahy, Ertel, Bandeira, and Shurvinton Fail In Any Combination To Teach Or Suggest “at least one base-station comprising a plurality of sectors; each sector comprising: indoor terminal nodes each comprising an antenna; outdoor terminal nodes each comprising an antenna; and a plurality of outdoor repeaters”

In certain embodiments of the present invention, each base station in a mesh access network consists of six sectors. See, *Specification*, pg. 2 par. [0039]. A sector consists of a large number of indoor terminal nodes, some outdoor terminal nodes, and a small number of outdoor repeaters. *Id.* As shown in Fig. 4 of the specification, a typical sector has level-1, level-2, and level-3 repeaters (shown as triangles, and associated terminals (shown as rectangles)).

¹ The following discussion identifies exemplary reference characters, and/or references particular portions of the disclosure. Such identification and/or references do not constitute a representation that any claim element is limited to the embodiment illustrated at any identified character or described in any referenced portion of the disclosure.



Data packets from the base-station to a node are switched to the node through multiple hops. *See, Specification, pg. 2, par. [0041]*. Similarly, data packets from a node are transmitted through multiple hops to the base-station. *Id.* Repeaters serve to facilitate these hops. *Id.* For example, in certain embodiments of the invention, the number of hops may be limited to four, *i.e.*, base station → repeater 1 → repeater 2 → repeater 3 → terminal. *Id.*

Consistently, amended Claim 1 recites, *inter alia*:

A mesh access network, comprising:
 at least one base-station comprising a plurality of sectors;
 each sector comprising:
 indoor terminal nodes each comprising an antenna;
 outdoor terminal nodes each comprising an antenna; and
 a plurality of outdoor repeaters, wherein said indoor and outdoor terminal nodes and repeaters in each section are arranged in a tree structure starting from said base-station, wherein said base-station sectors use different frequency bands that are located in alternate sectors of said base-station; and
 a module for interference management and sector reuse comprising network management of frequency, time, and directionality. (*Emphasis added*)

Majidi-Ahy, Ertel, Bandeira, and Shurvinton as applied in the Office action fail in any combination to teach or suggest such a network.

The Office action asserts access points equate to both the Claim 1 recited terminal nodes and repeaters. *See, e.g., 11/13/2009, Office action, pg. 5.* Specifically, the Office action argues

Majidi-Ahy teaches “each sector comprising of a plurality of terminal nodes, said terminal nodes comprising a plurality of repeaters, wherein each of the plurality of terminal nodes comprises an antenna alleging terminal nodes read on access points.” *See, 11/13/2009, Office action, pg. 5.* Further, the Office action argues Ertel discloses indoor and outdoor terminal nodes where Ertel discusses utilizing indoor and outdoor access points. *See, 11/13/2009, Office action, pg. 5.* Applicants traverse these rejections.

“A general rule of interpretation is that words in a claim will be given their ordinary and accustomed meaning, unless it appears that the inventor used them differently.” *Casler v. United States*, 15 Cl. Ct. 717, 9 U.S.P.Q.2d 1753 (1988). As recited above, Claim 1 explicitly calls for indoor and outdoor terminal nodes and repeaters. In their ordinary and customary meaning, and as the specification explains, a terminal node is different from a repeater. *See, Specification [0023]*. As discussed above, data packets from the base station to a node may be switched to the node through multiple hops. Data packets from a node may be transmitted through multiple hops to the base-station. And, repeaters may serve to facilitate these hops. Accordingly, it is improper to equate access points to both the recited terminal nodes and repeaters, where Claim 1, their ordinary and customary meaning and the specification all distinguish between them.

II. Majidi-Ahy, Ertel, Bandeira, And Shurvinton Fail In Any Combination To Teach Or Suggest “a module for interference management and sector reuse may comprise network management of frequency, time, and directionality.”

Further, Claim 1 also recites, *inter alia*: “a module for interference management and sector reuse comprising network management of frequency, time, and directionality.” Majidi, Ertel, Bandeira, and Shurvinton as applied in the Office action also fail in any combination to teach or suggest such a system.

The Office action acknowledges “Majidi, as modified by Ertel, does not refer to or disclose ... a management of frequency, time, and directionality.” *See 11/13/2009 Office action, pg. 5.* The Office action references select portions of Bandeira in an effort to remedy this admitted shortcoming of Majidi and Ertel. *See 11/13/2009 Office action, pgs. 5-6.* Applicants traverse this assertion for the following reasons.

The cited portions of *Bandeira* do not teach or suggest network management of frequency, time, and directionality. More particularly, *Bandeira* proposes that network nodes only require two independent channels and may combine the use of frequency and directional diversity to allow multiple nodes to transmit simultaneously in the same geographical area without collisions. *See, Bandeira, col. 3, ll. 16-21.* The mere use of frequency and directional diversity to allow multiple nodes to transmit simultaneously in the same geographical area without collisions does not teach or suggest the recited “network management of frequency, time, and directionality.”

In determining the differences between the prior art and the apparatus of Claim 1, the question under 35 U.S.C. §103 is **not** whether the differences themselves would have been obvious, but whether the claimed invention **as a whole** would have been obvious. *See, e.g., Stratoflex, Inc. v. Aeroquip Corp., 713 F.2d 1530, 218 USPQ 871 (Fed. Cir. 1983); Schenck v. Nortron Corp., 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983).* Accordingly, when the network of Claim 1 is properly considered **as a whole** it cannot be considered unpatentably obvious over any combination of Majidi-Ahy, Ertel, *Bandeira*, and Shurvinton at least by virtue that these references fail both individually and in any combination to teach or suggest “network management of frequency, time, and directionality.”

Further yet, the Office action acknowledges that notwithstanding primary, secondary and tertiary references are being relied upon, Majidi-Ahy, as modified by Ertel and *Bandeira* still does not particularly refer to or disclose the Claim 1 recited “module for interference management.” *See 11/13/2009, Office action, pg. 6.* The Office action relies upon select teachings of Shurvinton in an effort to remedy this yet further shortcoming of Majidi-Ahy, Ertel, and *Bandeira*.

Regarding Shurvinton, the Office action cites the purported disclosure of a module for interference management at col. 2 lines 34-42. *See, 11/13/2009 Office action, pg. 6.* However, this cited passage of Shurvinton merely teaches a base site arranged to operate in three sectors so that they each operate using different frequency channel sets, and a base station controller deciding what frequencies each base station should use. *See, Shurvinton, col. 4, ll. 52-66; col. 7 ll. 28-40.* More specifically, Shurvinton teaches a base station controller that makes a decision

based on the carrier to interference ratio ("CIR") as to what frequencies each base station should use. *Id.*

A base station controller that decides what frequencies each base station should use does not teach or suggest "a module for interference management and sector reuse comprising network management of frequency, time, and directionality" -- as is recited by Claim 1. Again, the relevant inquiry is not whether the individual elements recited by Claim 1 can be found individually in the prior art, but whether the network of Claim 1, when properly considered as a whole, is unpatentably obvious over the cited references considered in their entireties.

Wherefore, Applicants request reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of Claim 1. Applicants also request reconsideration and withdrawal of the rejections of Claims 2-18, and 37-38 as well, at least by virtue of these claims' ultimate dependency upon base Claim 1. *See, 35 U.S.C. §112, par. 4 ("[a] claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.")*.

Claims 19-36

Claim 19, while different in scope, analogously recites, *inter alia*:

A base station, comprising:
a plurality of sectors, each of which comprises:
indoor terminal nodes;
outdoor terminal nodes; and
a plurality of outdoor repeaters ... ; and
a module for interference management and sector reuse
comprising network management of frequency, time, and
directionality. (Emphasis added)

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of Claim 19 for at least the foregoing reasons as well. Applicant also requests reconsideration and withdrawal of the rejections of Claims 20 - 36, at least by virtue of these claims' ultimate dependency upon base Claim 19.

New Claims 37 and 38

In certain embodiments of the present invention, a base station in a mesh access network consists of a plurality of sectors. *See, Specification, pg. 2, par [39]*. For example, as described

in connection with Fig. 2 of the subject application, a base station having six sectors uses different frequency bands (F1 and F2) that are located in alternate sectors of the base-station. *See, Specification, pg. 2, par [40].* The labels A, B, C in Fig. 2 (reproduced below) signify different time-slots that in-sector links are active. *Id.* According to certain embodiments of the invention, the network may be deployed with only two available carriers and then grow the network, i.e. add more capacity and coverage, with additional carriers. *Id.*

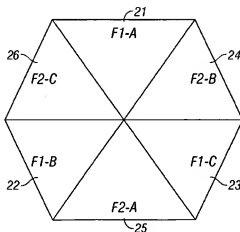


FIG. 2

The system capacity can be increased as described in Fig. 3 of the subject application.

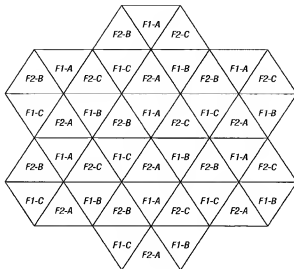
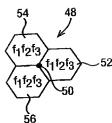


FIG. 3

Consistently, Claim 37 recites, *inter alia* “wherein the at least one base station is operatively configured to utilize a minimum of 2 frequency bands.” A non-limiting example of such a configuration is shown in Figs. 2 and 3. Claim 38 recites, *inter alia* “wherein the at least one base station is a dual-band base station.” A non-limiting example of such a configuration is shown in Figs. 2 and 3. Accordingly, no new matter has been added.

The Office action relies upon Shurvinton in an effort to remedy admitted shortcomings of the combined teachings of Majidi, Ertel, and Bandeira. However, a prior art reference must be considered in its entirety, *i.e.*, as a **whole**, including portions that would lead away from the claimed invention. *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). As is described in connection with the scheme of Fig. 7 (reproduced below), Shurvinton proposes a base station site 50 arranged to operate in three sectors 48. *Shurvinton, col 4, ll. 52-53*. These sectors 52, 54, 56 are arranged so they each operate using different frequency channel sets f1, f2, f3. *Shurvinton, col 4, ll. 54-55*. At substantially the same time, each sector 52, 54, 56 is arranged to operate using a different one of the frequency channels. *Shurvinton, col 4, ll. 55-57*.

FIG. 7



Accordingly, Shurvinton teaches a base station using three channel sets arranged to operate in three sectors. *Shurvinton, col 4, ll. 62-63*. A base station using three channel sets arranged to operate in three sectors leads away from “a base station operatively configured to utilize a minimum of 2 frequency bands” as recited in Claim 37, no less a “dual band base station” as is recited in Claim 38.

Accordingly, Applicant submits at least Claims 37 and 38 are in condition for allowance, an early notification of which is earnestly solicited, at least by virtue that the cited art, when considered in its entirety, teaches away from the recited invention thereof.

Disclaimer

Applicants may not have presented all possible arguments or have refuted the characterizations of either the claims or the prior art as found in the Office Action. However, the lack of such arguments or refutations is not intended to act as a waiver of such arguments or as concurrence with such characterizations.

CONCLUSION

Wherefore, Applicant believes he has addressed all outstanding grounds raised by the Examiner and respectfully submits the present case is in condition for allowance, early notification of which is earnestly solicited.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below. The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 27592-00912-US from which the undersigned is authorized to draw.

Dated: April 12, 2010

Respectfully submitted,

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